

Load PACS DPU OBS in instrument INIT mode
File: H_FCP_OBS_4110.xls
Author: Liviu Stefanov



Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to execute the PACS DPU OBS full image upload in instrument INIT mode (OBS upload from Application SW). It is called by the FOP PACS procedures H_FCP_PAC_NLDM and H_FCP_PAC_RLDM. The OBS image is loaded into the PACS DPU PM-High memory and the image integrity after upload is checked via checksum calculation and verification.

The copying of the OBS image from PM-High to PM-Low and OBS restart is executed in the calling procedure H_FCP_PAC_NLDM or H_FCP_PAC_RLDM. The calling procedure also includes the PM-High OBS image checksum verification and updated OBS version numbers verification.

This procedure assumes that the memory load and memory check command stacks have already been generated using the OBSM system and are ready for loading on the Manual Stack. The command stack generation activity is not covered by this procedure.

Note: The PACS DPU OBS upload in instrument RESCUE mode can be conducted via procedure H_FCP_OBS_4112.

Summary of Constraints

CDMU in Operational Mode
- PACS in INIT mode (DPU ASW running)

Memory areas are Loaded through TC(6,2) and Checked through TC(6,9); this TCs will be delayed when there is an ongoing:
- TC(6,2) Load Memory Using Absolute Addresses
- TC(6,5) Dump Memory Using Absolute Addresses
- TC(6,9) Check Memory Using Absolute Addresses
- TC(8,4,1,1) Copy Memory

Spacecraft Configuration

Start of Procedure

CDMU in Operational Mode
- PACS in INIT mode (DPU ASW running)

End of Procedure

Same as start except:
- New PACS DPU OBS image loaded in DPU PM-High memory

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP4110

Referenced Displays

Status : Version 4 - Unchanged
Last Checkin: 24/07/09

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ANDs **GRDs** **SLDs**
 PA000380
 PA029380

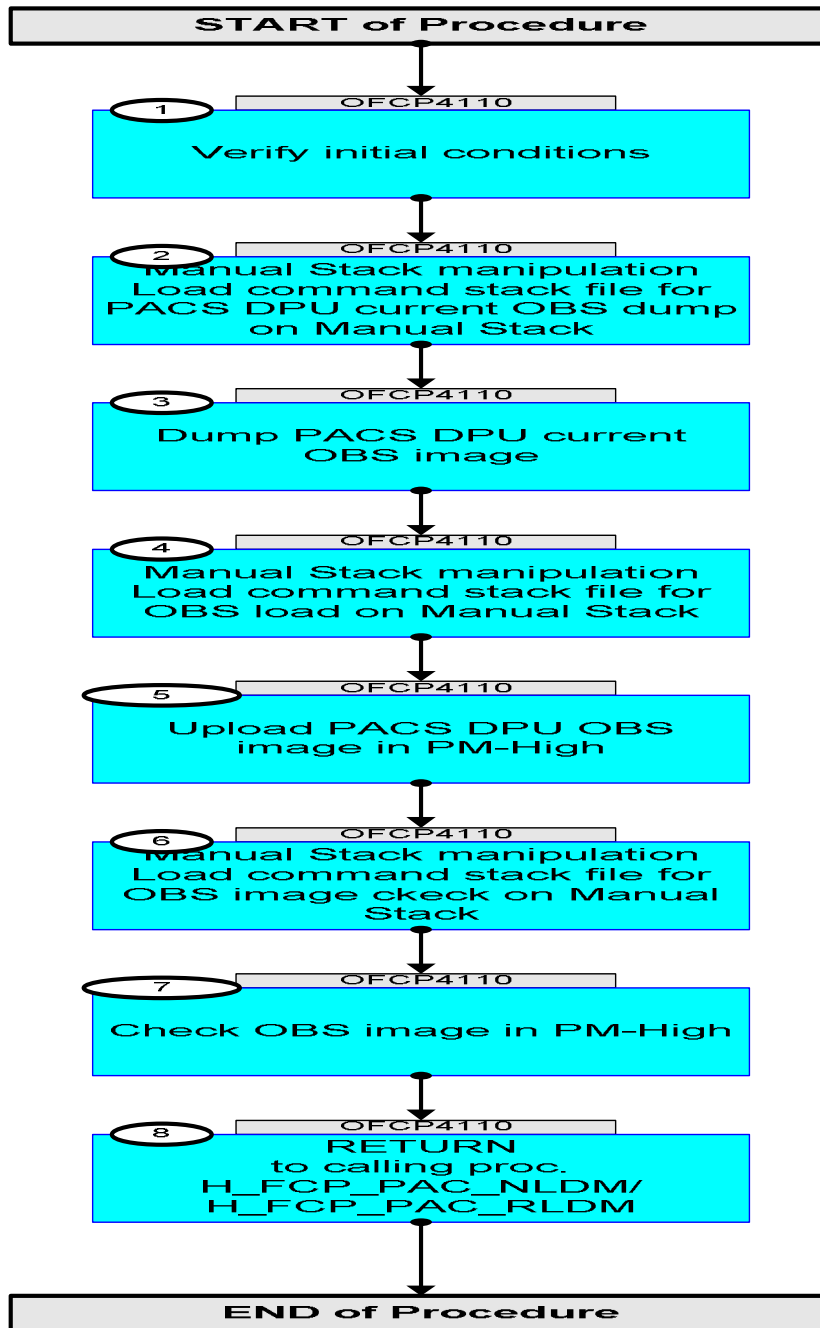
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
30/01/08	1	1	Created	Istefanov-hp	
17/06/09		2	1. added current steps 2 and 3, with sub-steps, to dump the PACS DPU OBS image from PM-Low before patch 2. step 4 and sub-steps updated to separate patch stack load from check stack load and stack load for Nominal and Redundant 3. added current step 6 to separate check stack load from patch stack load 4. current steps 6 and 7 and sub-steps updated for verification via checksums of the whole DPU OBS image in PM-High 5. added current step 8 to include return to calling procedure and instruct for DPU OBS image dump from PM-Low	Istefanov-hp	
19/07/09		3	1. steps 4.3, 5, and 6.3 updated for PACS DPU OBS v.9.04 2. step 8 updated to include start addresses and lengths for PACS OBS v.9.04 image dump from PM-Low	Istefanov-hp	
24/07/09	2.5	4	1. step 3 updated: added comment indicating the OBSM CT used to monitor only seg_init and seg_pmco dump 2. step 8 updated: corrected typo in start address values for OBS image dump from PM-Low 3. step8: replaced H_FCP_OBS_4143 (GI update) by H_FCP_OBS_4142 (dump monitor) in OBS dump from PM-Low related comments	Istefanov-hp	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
Beginning of Procedure					
OFCP4110		TC Seq. Name :OFCP4110 () Load PACS DPU OBS from ASW and check image TimeTag Type: B Sub Schedule ID: <input type="checkbox"/>			
1		Verify initial conditions		Next Step: 2	
		Check PACS instrument in INIT mode (DPU ASW running)			
		Instrument SOE to confirm PACS instrument mode			
		Note: Initial conditions are verified in calling procedure H_FCP_PAC_NLDM or H_FCP_PAC_RLDM.			
2		Manual Stack manipulation Load command stack file for PACS DPU current OBS dump on Manual Stack		Next Step: 3	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> LoadStack option from the main menu of the Manual Stack window			
2.1		IF PACS Nominal			
		Select file PADPRMPR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PADPRMPR as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		File name examples - No model associated to the memory image: PADPRMPR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PADPRMPR1, ID 0003, Version 001 associated to the memory image: PADPRMPR_DI_0002001_C_PADPRMPR1_0003001_2007_337T093320.sun043			
2.2		ELSE PACS Redundant			
		Select file PADMPRR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/hmcsofs/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PADMPRR as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name examples - No model associated to the memory image: PADMPRR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PADMPRR1, ID 0003, Version 001 associated to the memory image: PADMPRR_DI_0002001_C_PADMPRR1_0003001_2007_337T093320.sun043			
2.3		Check memory dump command stack loaded			
		Note: The PACS DPU OBS image is dumped from the PM-Low area			
		For PACS DPU OBS v.9.03 : Start Address = 00.0000 hex End Address = 01.0CC1 hex Length = 10CC2 hex			
		IMPORTANT: # of TCs, Address and Length values in the following sub-steps are applicable to PACS DPU OBS v.9.03			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Note: The ' Length ' parameter of the memory dump command is a 16-bit long parameter. A memory dump TC can cover a number of 65535 dec (FFFF hex) SAUs .			
2.3.1		Check number of memory dump commands in the stack			
		Check that loaded stack contains: 2 TCs PC028380			
2.3.2		Check memory ID			
		Display the Manual Stack in 'Full mode' and check that the Memory ID parameter in the PC028380 commands is set to 01 hex : Memory ID = 01 hex Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			
		Execute Telecommand <div style="text-align: right; margin-right: 100px;">DPU_MEMORY_DUMP</div> <div style="text-align: right; margin-right: 100px;">PC028380</div> <i>Command Parameter(s) :</i> <div style="display: flex; justify-content: space-between; margin-left: 100px;"> <div style="width: 30%;"> DPU_MEMORY_BLOCK_ID DPU_MEMORY_ADDR DPU_DATA_LENGTH </div> <div style="width: 30%;"> PP009380 PP003380 PP008380 </div> <div style="width: 30%;"> 01xx hex <hex> (Def) <hex> (Def) </div> </div> <i>TC Control Flags :</i> <div style="display: flex; justify-content: space-between; margin-left: 100px;"> <div style="width: 30%;"> GBM IL DSE --Y -- --- </div> </div> <i>Subsch. ID : 90</i> <i>Det. descr. : DUMP OF A DPU MEMORY AREA</i> This Telecommand will not be included in the export		TC	
2.3.3		Check start address and length of first command in the stack			
		With the Manual Stack in 'Full mode', check the Start Address and Length in the first PC028380 command: Start Address = 00.0000 hex Length = FFFF hex Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: center;">DPU_MEMORY_DUMP</p> <i>Command Parameter(s) :</i> DPU_MEMORY_BLOCK_ID PP009380 0100 <hex> DPU_MEMORY_ADDR PP003380 0000 <hex> DPU_DATA_LENGTH PP008380 FFFF <hex> <i>TC Control Flags :</i> <p style="text-align: center;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 90</i> Det. descr. : DUMP OF A DPU MEMORY AREA This Telecommand will not be included in the export	PC028380	TC	
2.3.4		Check start address and length of second command in the stack			
		With the Manual Stack in 'Full mode', check the Start Address and Length in the second PC028380 command: Start Address = 00.FFFF hex Length = CC3 hex Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			
		Execute Telecommand <p style="text-align: center;">DPU_MEMORY_DUMP</p> <i>Command Parameter(s) :</i> DPU_MEMORY_BLOCK_ID PP009380 0100 <hex> DPU_MEMORY_ADDR PP003380 FFFF <hex> DPU_DATA_LENGTH PP008380 CC3 <hex> <i>TC Control Flags :</i> <p style="text-align: center;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 90</i> Det. descr. : DUMP OF A DPU MEMORY AREA This Telecommand will not be included in the export	PC028380	TC	
3		Dump PACS DPU current OBS image		Next Step: 4	
		Note: The PACS DPU OBS image is dumped from the PM-Low area			
		Note: Only the seg_init and seg_pmco memory areas will be monitored against the ground reference image. An OBSM Configuration Table memory model will be used to declare the following PACS DPU PRAM areas " To Be Monitored ": For PACS DPU OBS v.9.03: seg_init Start Address = 00.4000 hex Length = 1551 hex seg_pmco Start Address = 00.5551 hex Length = B771 hex			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
3.1		MCS OBSM preparation for Image monitor in LIVE mode			
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.			
3.1.1		Select 'Image MONITOR' from the menu			
		Select the Image menu of the <i>OBSM Desktop</i> . From the Image menu, select Monitor . The 'Image Catalog' window opens.			
3.1.2		Select image to be monitored			
3.1.2.1		IF PACS Nominal			
		Select the image to be monitored for the memory device PADRMFRR . The 'Image MONITOR' window opens.			
3.1.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device PADRMFRR . The 'Image MONITOR' window opens.			
3.1.3		Start dump TM processing			
		In LIVE mode, processing of incoming real-time telemetry starts automatically after the image selection.			
3.2		Upload commands to dump the PACS DPU current OBS image			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Uplink the PC028380 memory dump commands with ARM-GO			
		For each command, several TM(6,6) packets must be received on ground.			
3.3		Verify reception of TM(6,6)			
		Note: One or more TM(6,6) packets will be received for each memory dump command uplinked.			
3.3.1		IF PACS Nominal			
		Verify Packet Reception PACS_MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1152 Type : 6 Subtype : 6 PI1 : PI2 :			
3.3.2		ELSE PACS Redundant			
		Verify Packet Reception PACS_MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1153 Type : 6 Subtype : 6 PI1 : PI2 :			
3.4		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
3.5		Check contents of memory dump packets			
		Verify that there are NO OBSM reported differences between the memory dump data and the ground image used for monitoring.			
		IF there are differences reported by OBSM between the dump data and the ground image, the merged image shall be saved for offline analysis.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
3.5.1		Save merged image			
		IF there are mismatches reported by OBSM, save merged image with new ID .			
		Conduct off-line analysis of the reported mismatches.			
4		Manual Stack manipulation Load command stack file for OBS load on Manual Stack		Next Step: 5	
		NOTE: The current procedure assumes that the memory load is performed using commands with immediate execution.			
		Select the File -> LoadStack option from the main menu of the Manual Stack window			
4.1		IF PACS Nominal			
		Select file PADPRMPR_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PADPRMPR as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example PADPRMPR_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
4.2		ELSE PACS Redundant			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select file PADRMPIR_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PADRMPIR as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example PADRMPIR_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
4.3		Check memory load command stack loaded			
		For PACS DPU OBSW v.9.04 : The start address of the PADRMPIR memory image used for memory load command stack generation is 00.0000 hex , and the last address in the image is 01.0CB4 hex . The offset applied to the memory image for OBS upload in PM-High is 03.0000 hex . Consequently, the first address to be loaded is 03.0000 hex , and the last address is 04.0CB4 hex : Start Address = 03.0000 hex End Address = 04.0CB4 hex Length = 10CB5 hex			
		IMPORTANT: # of TCs, Address and Length values in the following sub-steps are applicable to PACS DPU OBS v.9.04			
4.3.1		Check number of memory load commands in the stack			
		Check that loaded stack contains: 1811 TCs XC001998 for OBS v.9.04			
4.3.2		Check Memory ID			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																					
		Display the Manual Stack in 'Full mode' and check that the Memory ID parameter in the XC001998 commands is set to 01 hex : Memory ID = 01 hex Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.																								
		Execute Telecommand <div style="text-align: right; margin-right: 20px;">PACS Memory Load</div> XC001998 <i>Command Parameter(s) :</i> <table style="margin-left: 40px; border: none;"> <tr><td style="padding-right: 20px;">Memory ID</td><td style="padding-right: 20px;">XH000998</td><td>01xx hex</td></tr> <tr><td style="padding-right: 20px;">Start Address</td><td style="padding-right: 20px;">XH001998</td><td><hex> (Def)</td></tr> <tr><td style="padding-right: 20px;">Length of Block</td><td style="padding-right: 20px;">XH003998</td><td><dec> (Def)</td></tr> <tr><td style="padding-right: 20px;">Var length octet string</td><td style="padding-right: 20px;">XH004998</td><td><hex> (Def)</td></tr> <tr><td style="padding-right: 20px;">Checksum</td><td style="padding-right: 20px;">XH005998</td><td><hex> (Def)</td></tr> </table> <i>TC Control Flags :</i> <table style="margin-left: 40px; border: none;"> <tr><td style="padding-right: 20px;">GBM</td><td style="padding-right: 20px;">IL</td><td>DSE</td></tr> <tr><td style="padding-right: 20px;">--</td><td style="padding-right: 20px;">Y</td><td>---</td></tr> </table> <i>Subsch. ID : 30</i> <i>Det. descr. : Load PACS Memory Using Absolute Addresses</i> This Telecommand will not be included in the export	Memory ID	XH000998	01xx hex	Start Address	XH001998	<hex> (Def)	Length of Block	XH003998	<dec> (Def)	Var length octet string	XH004998	<hex> (Def)	Checksum	XH005998	<hex> (Def)	GBM	IL	DSE	--	Y	---	XC001998	TC	
Memory ID	XH000998	01xx hex																								
Start Address	XH001998	<hex> (Def)																								
Length of Block	XH003998	<dec> (Def)																								
Var length octet string	XH004998	<hex> (Def)																								
Checksum	XH005998	<hex> (Def)																								
GBM	IL	DSE																								
--	Y	---																								
4.3.3		Check start address and length of first command in the stack																								
		With the Manual Stack in 'Full mode', check the Start Address and Length in the first XC001998 command: Start Address = 03.0000 hex Length = 38 dec Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.																								
		Execute Telecommand <div style="text-align: right; margin-right: 20px;">PACS Memory Load</div> XC001998 <i>Command Parameter(s) :</i> <table style="margin-left: 40px; border: none;"> <tr><td style="padding-right: 20px;">Memory ID</td><td style="padding-right: 20px;">XH000998</td><td>0103 <hex></td></tr> <tr><td style="padding-right: 20px;">Start Address</td><td style="padding-right: 20px;">XH001998</td><td>0000 <hex></td></tr> <tr><td style="padding-right: 20px;">Length of Block</td><td style="padding-right: 20px;">XH003998</td><td>38 <dec></td></tr> <tr><td style="padding-right: 20px;">Var length octet string</td><td style="padding-right: 20px;">XH004998</td><td>patch data</td></tr> <tr><td style="padding-right: 20px;">Checksum</td><td style="padding-right: 20px;">XH005998</td><td>calculated by OBSM</td></tr> </table> <i>TC Control Flags :</i> <table style="margin-left: 40px; border: none;"> <tr><td style="padding-right: 20px;">GBM</td><td style="padding-right: 20px;">IL</td><td>DSE</td></tr> <tr><td style="padding-right: 20px;">--</td><td style="padding-right: 20px;">Y</td><td>---</td></tr> </table> <i>Subsch. ID : 30</i> <i>Det. descr. : Load PACS Memory Using Absolute Addresses</i> This Telecommand will not be included in the export	Memory ID	XH000998	0103 <hex>	Start Address	XH001998	0000 <hex>	Length of Block	XH003998	38 <dec>	Var length octet string	XH004998	patch data	Checksum	XH005998	calculated by OBSM	GBM	IL	DSE	--	Y	---	XC001998	TC	
Memory ID	XH000998	0103 <hex>																								
Start Address	XH001998	0000 <hex>																								
Length of Block	XH003998	38 <dec>																								
Var length octet string	XH004998	patch data																								
Checksum	XH005998	calculated by OBSM																								
GBM	IL	DSE																								
--	Y	---																								
4.3.4		Check start address and length of last command in the stack																								

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																	
		With the Manual Stack in 'Full mode', check the Start Address and Length in the last XC001998 command: Start Address = 04.0CAC hex Length = 9 dec Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.																				
		Execute Telecommand <div style="text-align: center;">PACS Memory Load</div> Command Parameter(s) : <table style="margin-left: 40px; border: none;"> <tr><td>Memory ID</td><td>XH000998</td><td>0104 <hex></td></tr> <tr><td>Start Address</td><td>XH001998</td><td>0CAC <hex></td></tr> <tr><td>Length of Block</td><td>XH003998</td><td>9 <dec></td></tr> <tr><td>Var length octet string</td><td>XH004998</td><td>patch data</td></tr> <tr><td>Checksum</td><td>XH005998</td><td>calculated by OBSM</td></tr> </table> TC Control Flags : <table style="margin-left: 40px; border: none;"> <tr><td>GEM IL DSE</td><td>--Y -- ---</td></tr> </table> Subsch. ID : 30 Det. descr. : Load PACS Memory Using Absolute Addresses This Telecommand will not be included in the export	Memory ID	XH000998	0104 <hex>	Start Address	XH001998	0CAC <hex>	Length of Block	XH003998	9 <dec>	Var length octet string	XH004998	patch data	Checksum	XH005998	calculated by OBSM	GEM IL DSE	--Y -- ---	XC001998	TC	
Memory ID	XH000998	0104 <hex>																				
Start Address	XH001998	0CAC <hex>																				
Length of Block	XH003998	9 <dec>																				
Var length octet string	XH004998	patch data																				
Checksum	XH005998	calculated by OBSM																				
GEM IL DSE	--Y -- ---																					
5		Upload PACS DPU OBS image in PM-High		Next Step: 6																		
		Uplink the XC001998 memory load commands with ARM-GO																				
		For each TC XC001998 successfully executed on-board, the DPU HK counter DP_COM_REC_DPU should be incremented by one. After all XC001998 TCs have been sent, the value of the counter should be: incremented by 1811 for PACS DPU OBS v.9.04																				
		Note: The following value corresponds to PACS DPU OBS v.9.04																				
		Verify Telemetry <table style="margin-left: 40px; border: none;"> <tr><td>DP_COM_REC_DPU</td><td>PM056380</td><td>= incremented by 1811 dec</td></tr> </table>	DP_COM_REC_DPU	PM056380	= incremented by 1811 dec		AND=PA000380															
DP_COM_REC_DPU	PM056380	= incremented by 1811 dec																				
		For each TC XC001998 successfully executed on-board, a TM(1,1) and TM(1,7) packet shall be received on ground.																				
5.1		IF PACS Nominal																				
		Verify Packet Reception <table style="margin-left: 40px; border: none;"> <tr><td>PACS_TC_ACP_OK</td><td></td></tr> <tr><td>Packet Mnemonic :</td><td>TC_ACP_OK</td></tr> <tr><td>APID :</td><td>1152</td></tr> <tr><td>Type :</td><td>1</td></tr> <tr><td>Subtype :</td><td>1</td></tr> <tr><td>PI1 :</td><td></td></tr> <tr><td>PI2 :</td><td></td></tr> </table>	PACS_TC_ACP_OK		Packet Mnemonic :	TC_ACP_OK	APID :	1152	Type :	1	Subtype :	1	PI1 :		PI2 :							
PACS_TC_ACP_OK																						
Packet Mnemonic :	TC_ACP_OK																					
APID :	1152																					
Type :	1																					
Subtype :	1																					
PI1 :																						
PI2 :																						

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		Verify Packet Reception PACS_TC_EXE_COMPL Packet Mnemonic : TC_EXE_COMPL APID : 1152 Type : 1 Subtype : 7 PI1 : PI2 :			
5.2		IF PACS Redundant			
		Verify Packet Reception PACS_TC_ACP_OK Packet Mnemonic : TC_ACP_OK APID : 1153 Type : 1 Subtype : 1 PI1 : PI2 :			
		Verify Packet Reception PACS_TC_EXE_COMPL Packet Mnemonic : TC_EXE_COMPL APID : 1153 Type : 1 Subtype : 7 PI1 : PI2 :			
6		Manual Stack manipulation Load command stack file for OBS image ccheck on Manual Stack		Next Step: 7	
		Note: The PACS DPU OBS image in the PM-High area is checked			
		Select the File -> LoadStack option from the main menu of the Manual Stack window			
6.1		IF PACS Nominal			
		Select file PADPRMPR_CI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PADPRMPR as indicated by the OBSM engineer			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example PADPRMPR_CI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
6.2		ELSE PACS Redundant			
		Select file PADPRMPR_CI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PADPRMPR as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example PADPRMPR_CI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
6.3		Check memory check command stack loaded			
		Note: The whole OBS image in PM-High is verified after load using checksum calculation over the following 2 memory areas: For PACS DPU OBS v.9.04: Start Address = 03.0000 hex End Address = 03.FFFE hex Length = FFFF hex Checksum = 0217 hex Start Address = 03.FFFF hex End Address = 04.0CB4 hex Length = CB6 hex Checksum = 7FC6 hex			
		IMPORTANT: # of TCs, Address and Length values in the following sub-steps are applicable to PACS DPU OBS v.9.04			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Note: The ' Length ' parameter of the memory check command is a 16-bit long parameter. A memory check TC can cover a number of 65535 dec (FFFF hex) SAUs .			
6.3.1		Check number of memory check commands in the stack Check that loaded stack contains: 2 TCs PC029380			
6.3.2		Check Memory ID Display the Manual Stack in 'Full mode' and check that the Memory ID parameter in the PC029380 commands is set to 01 hex : Memory ID = 01 hex Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			
		Execute Telecommand <div style="text-align: right; margin-left: 200px;">DPU_MEMORY_CHECK</div> <i>Command Parameter(s) :</i> <div style="display: flex; justify-content: space-between; margin-left: 20px;"> <div style="width: 30%;"> DPU_MEMORY_BLOCK_ID DPU_MEMORY_ADDR DPU_DATA_LENGTH </div> <div style="width: 30%;"> PP009380 PP003380 PP008380 </div> <div style="width: 30%;"> 01xx <hex> <hex> (Def) <hex> (Def) </div> </div> <i>TC Control Flags :</i> <div style="display: flex; justify-content: space-between; margin-left: 200px;"> <div style="width: 30%;"> GBM IL DSE --Y -- --- </div> </div> <i>Subsch. ID : 90</i> <i>Det. descr. : REQUEST FOR A CHECKSUM OF A SPECIFIED MEMORY AREA</i> This Telecommand will not be included in the export	PC029380	TC	
6.3.3		Check start address and length of first command in the stack With the Manual Stack in 'Full mode', check the Start Address in the first PC029380 command: Start Address = 03.0000 hex Length = FFFF hex Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: right;">DPU_MEMORY_CHECK</p> <p style="text-align: right;">PC029380</p> <p>Command Parameter(s) :</p> <p style="margin-left: 40px;">DPU_MEMORY_BLOCK_ID PP009380 0103 <hex></p> <p style="margin-left: 40px;">DPU_MEMORY_ADDR PP003380 0000 <hex></p> <p style="margin-left: 40px;">DPU_DATA_LENGTH PP008380 FFFF <hex></p> <p>TC Control Flags :</p> <p style="margin-left: 40px;">GBM IL DSE</p> <p style="margin-left: 40px;">--Y -- ---</p> <p>Subsch. ID : 90</p> <p>Det. descr. : REQUEST FOR A CHECKSUM OF A SPECIFIED MEMORY AREA</p> <p>This Telecommand will not be included in the export</p>		TC	
6.3.4		Check start address and length of last command in the stack			
		With the Manual Stack in 'Full mode', check the Start Address in the last PC029380 command:			
		Start Address = 03.FFFF hex Length = CB6 hex			
		Note: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			
		Execute Telecommand <p style="text-align: right;">DPU_MEMORY_CHECK</p> <p style="text-align: right;">PC029380</p> <p>Command Parameter(s) :</p> <p style="margin-left: 40px;">DPU_MEMORY_BLOCK_ID PP009380 0103 <hex></p> <p style="margin-left: 40px;">DPU_MEMORY_ADDR PP003380 FFFF <hex></p> <p style="margin-left: 40px;">DPU_DATA_LENGTH PP008380 CB6 <hex></p> <p>TC Control Flags :</p> <p style="margin-left: 40px;">GBM IL DSE</p> <p style="margin-left: 40px;">--Y -- ---</p> <p>Subsch. ID : 90</p> <p>Det. descr. : REQUEST FOR A CHECKSUM OF A SPECIFIED MEMORY AREA</p> <p>This Telecommand will not be included in the export</p>		TC	
7		Check OBS image in PM-High		Next Step: 8	
		For each TC(6,9), a TM(6,10) packet shall be received on ground.			
		IMPORTANT: Address, Length and Checksum values in the following sub-steps are applicable to PACS DPU OBS v.9.04			
7.1		Command and verify the first checksum			
		Uplink the first PC029380 memory check command with ARM-GO			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand DPU_MEMORY_CHECK Command Parameter(s) : DPU_MEMORY_BLOCK_ID PP009380 DPU_MEMORY_ADDR PP003380 DPU_DATA_LENGTH PP008380 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 90 Det. descr. : REQUEST FOR A CHECKSUM OF A SPECIFIED MEMORY AREA This Telecommand will not be included in the export	PC029380	TC	
7.1.1		Verify reception and contents of TM(6,10)			
		Note: A TM(6,10) packet will be received for each memory check command uplinked.			
7.1.1.1		IF PACS Nominal			
		Verify Packet Reception PACS_MEMORY_CRC Packet Mnemonic : MEMORY_CRC APID : 1152 Type : 6 Subtype : 10 PI1 : PI2 :			
		Verify Telemetry MEMORY_ID PM129380	= 0103 <hex>	AND=PA029380	
		Verify Telemetry START_ADDRESS PM130380	= 0000 <hex>	AND=PA029380	
		Verify Telemetry LENGTH PM131380	= FFFF <hex>	AND=PA029380	
		Verify Telemetry CHECKSUM PM132380	= 0217 <hex>	AND=PA029380	
7.1.1.2		ELSE PACS Redundant			
		Verify Packet Reception PACS_MEMORY_CRC Packet Mnemonic : MEMORY_CRC APID : 1153 Type : 6 Subtype : 10 PI1 : PI2 :			
		Verify Telemetry MEMORY_ID PM129380	= 0103 <hex>	AND=PA029380	
		Verify Telemetry START_ADDRESS PM130380	= 0000 <hex>	AND=PA029380	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Telemetry LENGTH PM131380	= FFFF <hex>	AND=PA029380	
		Verify Telemetry CHECKSUM PM132380	= 0217 <hex>	AND=PA029380	
7.1.2		Verify checksum value			
		Check the received checksum against the expected value			
		Verify Telemetry CHECKSUM PM132380	= <hex> = 0217 <hex>	AND=PA029380	
7.2		Command and verify the second checksum			
		Uplink the second PC029380 memory check command with ARM-GO			
		Execute Telecommand DPU_MEMORY_CHECK PC029380 Command Parameter(s) : DPU_MEMORY_BLOCK_ID PP009380 0103 <hex> DPU_MEMORY_ADDR PP003380 FFFF <hex> DPU_DATA_LENGTH PP008380 CB6 <hex> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 90 Det. descr. : REQUEST FOR A CHECKSUM OF A SPECIFIED MEMORY AREA This Telecommand will not be included in the export		TC	
7.2.1		Verify reception and contents of TM(6,10)			
		Note: A TM(6,10) packet will be received for each memory check command uplinked.			
7.2.1.1		IF PACS Nominal			
		Verify Packet Reception PACS_MEMORY_CRC Packet Mnemonic : MEMORY_CRC APID : 1152 Type : 6 Subtype : 10 PI1 : PI2 :			
		Verify Telemetry MEMORY_ID PM129380	= 0103 <hex>	AND=PA029380	
		Verify Telemetry START_ADDRESS PM130380	= FFFF <hex>	AND=PA029380	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Telemetry LENGTH PM131380	= CB6 <hex>	AND=PA029380	
		Verify Telemetry CHECKSUM PM132380	= 7FC6 <hex>	AND=PA029380	
7.2.1.2		ELSE PACS Redundant			
		Verify Packet Reception PACS_MEMORY_CRC Packet Mnemonic : MEMORY_CRC APID : 1153 Type : 6 Subtype : 10 PI1 : PI2 :			
		Verify Telemetry MEMORY_ID PM129380	= 0103 <hex>	AND=PA029380	
		Verify Telemetry START_ADDRESS PM130380	= FFFF <hex>	AND=PA029380	
		Verify Telemetry LENGTH PM131380	= CB6 <hex>	AND=PA029380	
		Verify Telemetry CHECKSUM PM132380	= 7FC6 <hex>	AND=PA029380	
7.2.2		Verify checksum value			
		Check the received checksum against the expected value			
		Verify Telemetry CHECKSUM PM132380	= 7FC6 <hex>	AND=PA029380	
8		RETURN to calling proc. H_FCP_PAC_NLDM/H_FCP_PAC_RLDM		Next Step: END	
		IMPORTANT: After OBS image copy from PM-High to PM-Low executed in calling procedure H_FCP_PAC_NLDM/H_FCP_PAC_RNLDM, dump the PACS DPU new OBS image from PM-Low using FOP procedure H_FCP_OBS_4142.			
		Note: For PACS DPU OBS v.9.04, the memory area to be dumped in H_FCP_OBS_4142 is: Start Address = 00.0000 hex End Address = 01.0CB4 hex Length = 10CB5 hex			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p>Note: For PACS DPU OBS v.9.04, the 2 TCs PC028380 used in H_FCP_OBS_4142 to dump from PM-Low will have the following parameters:</p> <p>First TC PC028380: Start Address = 00.0000 hex Length = FFFF hex</p> <p>Second TC PC028380: Start Address = 00.FFFF hex Length = CB6 hex</p>			
End of Sequence					
End of Procedure					